

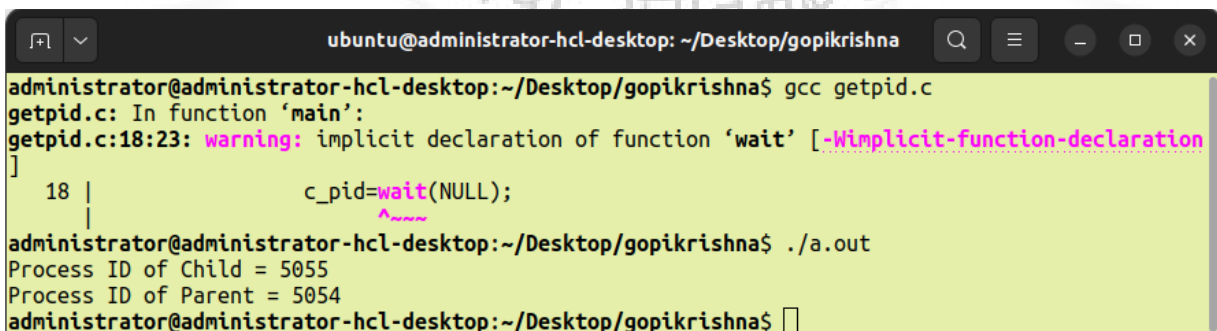
### 3.1 >> fork() & getpid()

```
#include<stdio.h>
#include<sys/types.h>
#include<unistd.h>
#include<stdlib.h>

void main()
{
    int pid,pid1,pid2,c_pid;
    pid=fork();

    if(pid == -1)
    {
        printf("Error in process creation \n");
        exit(1);
    }
    if(pid != 0)
    {
        c_pid=wait(NULL);
        pid1=getpid();
        printf("Process ID of Parent = %d\n",pid1);
    }
    else
    {
        pid2=getpid();
        printf("Process ID of Child = %d\n",pid2);
    }
}
```

### OUTPUT



```
ubuntu@administrator-hcl-desktop: ~/Desktop/gopikrishna
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$ gcc getpid.c
getpid.c: In function 'main':
getpid.c:18:23: warning: implicit declaration of function 'wait' [-Wimplicit-function-declaration]
   18 |         c_pid=wait(NULL);
      |                   ^
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$ ./a.out
Process ID of Child = 5055
Process ID of Parent = 5054
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$
```

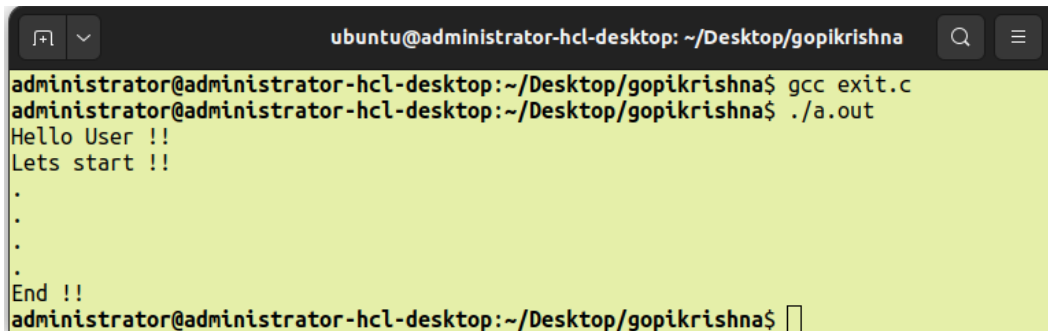
### 3.2 >> exit()

```
#include<stdio.h>
#include<stdlib.h>
```

```
void main()
```

```
{
    printf("Hello User !! \nLets start !! \n. \n. \n. \nEnd !! \n");
    exit(EXIT_SUCCESS);
}
```

## OUTPUT



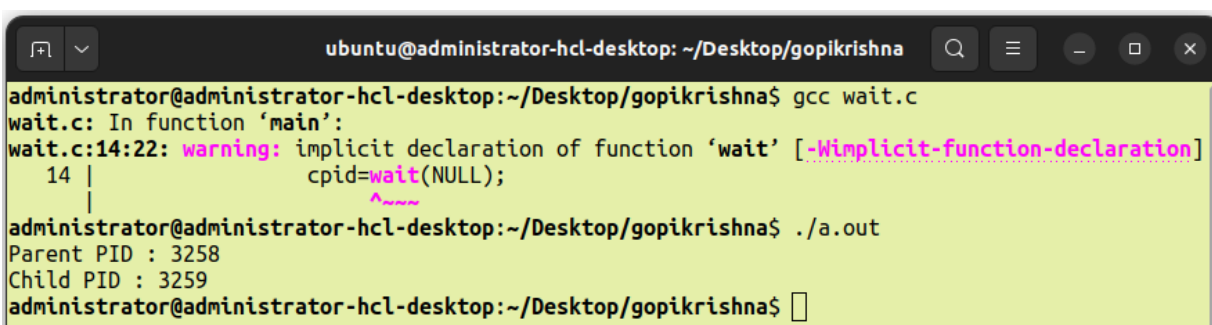
```
ubuntu@administrator-hcl-desktop: ~/Desktop/gopikrishna
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$ gcc exit.c
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$ ./a.out
Hello User !!
Lets start !!
.
.
.
.
.
End !!
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$
```

### 3.3 >> wait()

```
#include<stdio.h>
#include<stdlib.h>
#include<unistd.h>

void main()
{
    pid_t cpid;
    if(fork()==0)
    {
        exit(0);
    }
    else
    {
        cpid=wait(NULL);
    }
    printf("Parent PID : %d\n",getpid());
    printf("Child PID : %d\n",cpid);
}
```

## OUTPUT



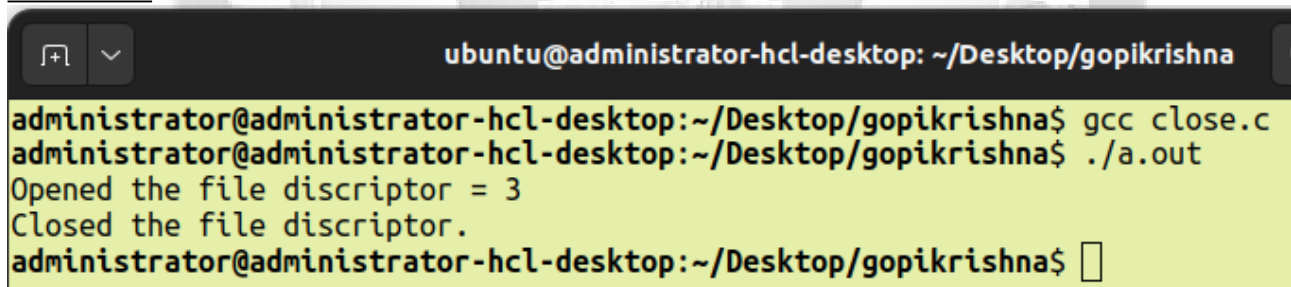
```
ubuntu@administrator-hcl-desktop: ~/Desktop/gopikrishna
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$ gcc wait.c
wait.c: In function 'main':
wait.c:14:22: warning: implicit declaration of function 'wait' [-Wimplicit-function-declaration]
   14 |         cpid=wait(NULL);
      |               ^~~~~
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$ ./a.out
Parent PID : 3258
Child PID : 3259
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$
```

### 3.4 >> close()

```
#include<stdio.h>
#include<stdlib.h>
#include<fcntl.h>

int main()
{
    int fd1=open("hi.txt",O_RDONLY);
    if(fd1<0)
    {
        perror("c1");
        exit(1);
    }
    printf("Opened the file descriptor = %d\n",fd1);
    if(close(fd1)<0)
    {
        perror("c1");
        exit(1);
    }
    printf("Closed the file descriptor.\n");
}
```

#### OUTPUT



```
ubuntu@administrator-hcl-desktop: ~/Desktop/gopikrishna
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$ gcc close.c
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$ ./a.out
Opened the file descriptor = 3
Closed the file descriptor.
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$
```

### 3.5 >> stat()

```
#include<stdio.h>
#include<sys/stat.h>

void main()
{
    struct stat file;
    stat("stat.c",&file);
    printf("ST_Mode : %o \n",file.st_mode);
}
```

## OUTPUT

```
ubuntu@administrator-hcl-desktop: ~/Desktop/gopikrishna
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$ gcc stat.c
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$ ./a.out
ST_Mode : 100600
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$
```

### 3.6 >> execl()

```
#include<stdio.h>
#include<unistd.h>

void main()
{
    int pid;
    pid=fork();
    if(pid==0)
    {
        printf("EXEC STARTS");
        execl("/bin/ls","ls","-l",(char)(0));
        printf("EXEC DIDN'T WORK");
    }
    else
    {
        wait(0);
        printf("PARENT = 'ls' is completed in CHILD\n");
    }
}
```

## OUTPUT

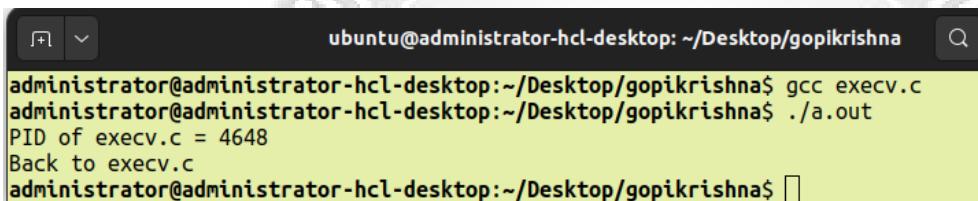
```
ubuntu@administrator-hcl-desktop: ~/Desktop/gopikrishna
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$ gcc execl.c
execl.c: In function 'main':
execl.c:11:17: warning: missing sentinel in function call [-Wformat=]
  11 |         execl("/bin/ls","ls","-l",(char)(0));
      |         ~~~~~
execl.c:16:17: warning: implicit declaration of function 'wait' [-Wimplicit-function-declaration]
  16 |         wait(0);
      |         ~~~~
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$ ./a.out
total 76
-rwxrwxr-x 1 ubuntu ubuntu 16120 Apr  2 13:08 a.out
-rw----- 1 ubuntu ubuntu   292 Apr  2 12:59 close.c
-rw----- 1 ubuntu ubuntu   332 Apr  2 13:03 directory.c
-rw----- 1 ubuntu ubuntu   264 Apr  2 13:08 execl.c
-rw----- 1 ubuntu ubuntu   251 Mar 13 03:25 execv.c
-rw----- 1 ubuntu ubuntu   144 Mar 13 03:25 exit.c
-rw----- 1 ubuntu ubuntu   148 Mar 13 03:25 fork.c
-rw----- 1 ubuntu ubuntu    47 Mar 13 03:25 hi.txt
-rw----- 1 ubuntu ubuntu   139 Mar 13 03:25 stat.c
-rw----- 1 ubuntu ubuntu 16848 Mar 13 03:25 stat.out
-rw----- 1 ubuntu ubuntu    47 Mar 13 03:25 test.txt
-rw----- 1 ubuntu ubuntu   223 Mar 13 03:25 wait.c
PARENT = 'ls' is completed in CHILD
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$
```

### 3.7 >> execl()

```
#include<stdio.h>
#include<unistd.h>
#include<stdlib.h>

int main(int argc,char *argv[])
{
    printf("PID of execl.c = %d\n",getpid());
    char *args[]={"HELLO","C","PROGRAMMING",NULL};
    execl("./stat.out",args);
    printf("Back to execl.c\n");
    return 0;
}
```

### OUTPUT



```
ubuntu@administrator-hcl-desktop: ~/Desktop/gopikrishna
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$ gcc execl.c
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$ ./a.out
PID of execl.c = 4648
Back to execl.c
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$
```

### 3.8 >> opendir() , readdir() & closedir()

```
#include<stdio.h>
#include<dirent.h>
int main()
{
    DIR *folder;
    struct dirent *entry;
    int files=0;
    folder=opendir(".");
    if(folder==NULL)
    {
        perror("Unable to Read Directory");
        return (1);
    }
    while((entry=readdir(folder)))
    {
        files++;
        printf("File %d : %s\n",files,entry->d_name);
    }
    closedir(folder);
    return 0;
}
```

## OUTPUT

```
ubuntu@administrator-hcl-desktop: ~/Desktop/gopikrishna
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$ gcc directory.c
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$ ./a.out
File 1 : stat.out
File 2 : .
File 3 : execl.c
File 4 : directory.c
File 5 : hi.txt
File 6 : stat.c
File 7 : execv.c
File 8 : ..
File 9 : fork.c
File 10 : test.txt
File 11 : close.c
File 12 : a.out
File 13 : exit.c
File 14 : wait.c
administrator@administrator-hcl-desktop:~/Desktop/gopikrishna$
```

